

Appl. No. 10/822,505
Reply to Office Action of January 9, 2006

Attorney Docket No. 2003-1180 / 24061.226
Customer No. 42717

REMARKS

Claims 1-49 were previously pending, of which claims 26 and 30 have been amended, claims 15-25, 27-29, and 31-39 have been maintained in their original form, and claims 1-14 and 40-48 have been cancelled. Reconsideration of presently pending claims 15-39 is respectfully requested in light of the following remarks.

Allowable Subject Matter

Claims 26 and 30 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. Claims 26 and 30 have been rewritten in independent form and are in condition for allowance.

Rejections Under 35 U.S.C. §102

Claim 15 recites:

A method of manufacturing a microelectronic device, comprising: providing a substrate having a protective layer located thereon and a plurality of isolation structures extending through the protective layer and at least partially into the substrate; forming a mask over a first portion of a surface collectively formed by the protective layer and the plurality of isolation structures, the masked first portion thereby sharing a boundary with an unmasked second portion of the surface; removing sacrificial portions of the protective layer from within the unmasked second portion; removing the mask; forming a conformal layer over remaining portions of the protective layer, the isolation structures, and in voids created by the removal of the sacrificial portions of the protective layer; planarizing the conformal layer such that the conformal layer, the isolation structures, and the remaining portions of the protective layer are substantially coplanar; removing the remaining portions of the protective layer; and forming transistors in voids created by the removal of the remaining portions of the protective layer.

Appl. No. 10/822,505
Reply to Office Action of January 9, 2006

Attorney Docket No. 2003-1180 / 24061.226
Customer No. 42717

Claim 15 was rejected under 35 U.S.C. §102(e) as being anticipated by Kim, et al. (US Patent No. 6,524,915 hereinafter referred to as "Kim"). The PTO provides in MPEP § 2131 that "*[I]f a reference anticipates a claim, the reference must teach every element of the claim....*" Therefore, with respect to claim 15, to sustain this rejection the Kim reference must contain all of the above claimed elements of the claim. However, Kim does not disclose "forming a mask over a first portion of a surface collectively formed by the protective layer and the plurality of isolation structures, the masked first portion thereby sharing a boundary with an unmasked second portion of the surface" and "removing sacrificial portions of the protective layer from within the unmasked second portion."

As stated in the Office Action, "Kim shows...forming a mask (205) over a first portion of a surface collectively formed by the protective layer and the plurality of isolation structures, the masked first portion thereby sharing a boundary with an unmasked second portion (col. 7, lines 9-20)." (See Office Action, pg. 3, par. 5). However, the figures and corresponding text of Kim clearly show that "a second oxidation film 205 is deposited over the entire surface of the semiconductor substrate 200 and covers the second nitride layer 204 and the exposed surface of the first conductive layer 202." (Emphasis added) (See Kim, col. 7, lines 9-12; Figs. 6B & 7B). Thus, Kim does not disclose "forming a mask over a first portion of a surface collectively formed by the protective layer and the plurality of isolation structures, the masked first portion thereby sharing a boundary with an unmasked second portion of the surface" and "removing sacrificial portions of the protective layer from within the unmasked second portion," as recited in claim 15. (Emphasis added) (See Present Application, Figs. 9b & 9c).

Additionally, as stated in the Office Action, "Kim shows...forming a conformal layer (202) over remaining portions of the protective layer, the isolation structures, and in voids created by the removal of the sacrificial portions of the protective layer (col. 7, lines 33-45)." (See Office Action, pg. 3, par. 5). However, the corresponding figures in Kim clearly show that reference number (202) is the first conductive layer which does not cover portions of the isolation structures (203). (See Kim, Figs. 7A-7D). Therefore, Kim does not disclose "forming a

Appl. No. 10/822,505
Reply to Office Action of January 9, 2006

Attorney Docket No. 2003-1180 / 24061.226
Customer No. 42717

conformal layer over remaining portions of the protective layer, the isolation structures, and in voids created by the removal of the sacrificial portions of the protective layer," as recited in claim 15. (See Present Application, Fig. 9d).

Furthermore, as stated in the Office Action, "Kim shows...planarizing the conformal layer such that the conformal layer, the isolation structures, and the remaining portions of the protective layer are coplanar (col. 7, lines 46-53)." (See Office Action, pg. 3, par. 5) However, the corresponding figures in Kim clearly show that only the third nitride layer (215a) is planarized following the chemical-mechanical polish process. (See Kim, Figs. 7H & 7I). In contrast, the present application teaches "planarizing the conformal layer such that the conformal layer [955], the isolation structures [920], and the remaining portions of the protective layer [910] are substantially coplanar," as recited in claim 15. (Emphasis added) (See Present Application, par. [0063]; Fig. 9e).

Therefore, the rejection of claim 15 based on 35 U.S.C. §102(e) cannot be supported by the Kim reference and should be withdrawn.

Independent claim 28 is allowable for the same reasons set forth above. Dependent claims 16-27 and 29-39 depend from, and further limit, independent claims 15 and 28 and therefore are allowable as well.

Appl. No. 10/822,505
Reply to Office Action of January 9, 2006

Attorney Docket No. 2003-1180 / 24061.226
Customer No. 42717

The Examiner is invited to call the undersigned at the below-listed telephone number if a telephone conference would expedite or aid the prosecution and examination of this application. Deposit account 08-1394 can be used, as required.

An early formal notice of allowance of claims 15-39 is requested.

Respectfully submitted,



David M. O'Dell
Registration No. 42,044

Dated: April 4, 2006

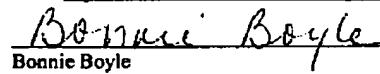
HAYNES AND BOONE, LLP
901 Main Street, Suite 3100
Dallas, Texas 75202-3789
Telephone: 972/739-8635
Facsimile: 214/200-0853
Client Matter No.: 2003-1180
Attorney Docket No.: 24061.226
Document No.: R-129680

CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that this paper is being facsimile transmitted to the Patent and Trademark Office on the date shown below.

Facsimile No.: 1-571 273 8300

Date: April 4, 2006


Bonnie Boyle